Addendum to the proof of Theorem 18.3.18

Where are we using finite presentability? It is needed in Case 1, an expanded version of which follows:

Redefine Y^+ to be the *carrier* of $h_K^{-1}([-r,\infty))$ in $\bar{X}_K$. Write $\bar{h} : \tilde{X} \to \bar{X}_K$ for the appropriate composition in the commutative diagram on page 451. Assuming the epimorphism hypothesis of Case 1, we conclude (by 3.4.9) that $\bar{h}^{-1}(Y^+)$ is path connected and contains the pre-image of $[-r,\infty)$. Let λ be the maximum of the diameters in $\mathbb{R}$ of the images of cells of $\tilde{X}$. By G-equivariance and the fact that X is finite we have $\lambda < \infty$. It follows that $\bar{h}^{-1}(Y^+)$ lies in the pre-image of $[-r-\lambda,\infty)$. By 18.3.1(ii) this implies $[\chi] \in \Sigma^1(G)$. Similarly for the "minus" case.

One other point: After the words "are path connected" (lines 3 and 4 of page 451) insert the words "for sufficiently large r".